

## Low Density Voice/Fax Network Modules for the Cisco 2600, 3600 and 3700 Series Routers

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Cisco 2600, 3600, and 3700 low density voice/fax network modules provide enterprises, managed service providers and service providers the ability to directly connect the PSTN and legacy telephony equipment to existing Cisco 2600, Cisco 3600, and Cisco 3700 routers. This provides immediate multiservice advantages, such as telephony toll bypass, new packet telephony applications, and full gateway integration within a Cisco AVVID architecture.

The low density voice/fax network modules for the Cisco 2600, 3600, and 3700 series multiservice access routers enable packet voice technologies including VoIP (H.323, MGCP and SIP), VoFR and VoATM. Cisco voice solutions provide the means for integrating both voice and data within a single network allowing users to take advantage of services, such as toll-bypass, without sacrificing voice quality. Cisco IOS® software also incorporates built-in quality-of-service (QoS) features along with standards-based encapsulation providing efficient direct transport of both voice and fax over IP, Frame Relay and ATM networks. These Cisco IOS solutions enable time-sensitive voice traffic to be moved across even low-bandwidth WAN

connections with the priority and quality voice/fax demands. Transporting voice over IP networks continues to provide transport flexibility since IP can be routed across a multitude of WAN technologies (leased lines, Frame Relay, and ATM) along with providing direct connectivity to the desktop.

These low density/fax network modules also provide the gateway to Cisco AVVID architectures for calls to and from the PSTN and legacy telephony equipment (including PBXs, analog telephones, fax machines and key systems). Users can deploy networks which leverage investments in existing legacy telephony equipment while also deploying and integrating IP telephony immediately or in the future. These network modules enable users to operate at any point on the voice, video & data integrated infrastructure spectrum while incrementally adding connections to both legacy telephony and IP telephony on these networks.

The low density voice/fax network modules slide into Cisco 2600, 3600, and 3700 network module slots and contain either one or two voice interface card (VIC) slots. The VICs are daughter cards that slide into

Figure 1 NM-2V Module with One Two-Port FXO VIC with battery reversal detection and Caller ID support (VIC-2FXO-M1)





the voice/fax network modules and provide the interface to the telephony equipment and the PSTN. Just as the Cisco WAN interface cards can be swapped with other WAN interface cards, the Cisco VICs can be deployed interchangeably with other VICs in the voice/fax network modules. This built-in flexibility and investment protection are key reasons for the world-wide popularity of Cisco modular branch office router products.

VICs currently available include two-port foreign exchange station (FXS), direct inward dial (DID), foreign exchange office (FXO), Centralized Automated Message Accounting (CAMA) and E&M analog interface cards. Also available are a two-port ISDN Basic Rate Interface (BRI) digital interface card providing no phantom power and a two-port ISDN Basic Rate Interface (BRI) digital interface card providing -48V phantom power. These cards cover the entire range of analog connectivity options along with user side Q.931 and QSIG digital BRI connections (see chart). A Cisco 2600 series, including 2691 and 2600XM, or a Cisco 3620 can house one voice/fax module that contains up to two VICs, a Cisco 3640 can house up to three modules with a total of six VICs, and the 3660 holds up to six network modules providing a maximum of 24 analog voice ports. In addition, a Cisco 3725 can house two voice/fax modules with a total of four VICs and a Cisco 3745 can house up to four modules with a total of eight VICs.

Module/VIC	Description
NM-1V	One voice/fax interface card slot network module
NM-2V	Two voice/fax interface card slot network module
VIC-2FXS	Two-port FXS voice/fax interface card
VIC-2FXO	Two-port FXO voice/fax interface card [also see VIC-2FXO-M1]
VIC-2E/M	Two-port E&M voice/fax interface card
VIC-2FXO-EU	Two-port FXO voice/fax interface card (for Europe) [also see VIC-2FXO-M2]
VIC-2FXO-M1	Two-port FXO voice/fax interface card with battery reversal detection and caller ID support (for US, Canada and others) [enhanced version of the VIC-2FXO]
VIC-2FXO-M2	Two-port FXO voice/fax interface card with battery reversal detection and caller ID support (for Europe) [enhanced version of the VIC-2FXO-EU]
VIC-2FXO-M3	Two-port FXO voice/fax interface card (for Australia)
VIC-2BRI-S/T-TE	Two-port BRI voice/fax interface card (terminal side)
VIC-2BRI-NT/TE	Two-port BRI voice/fax interface card (network and terminal side)
VIC-2DID	Two-port DID (direct inward dial) voice/fax interface card
VIC-2CAMA	Two-port CAMA trunk interface card



Table 1 Cisco Voice Interface Card Applications

VIC Type	Application
VIC-2FXS	Use to connect directly to phones, fax machines, and key systems (generates battery polarity reversal with IOS Plus 12.1.2T and later and generates Caller ID using IOS Plus 12.1.3T or later).
VIC-2FXO	Use to connect to PBX or key system and to provide off-premise connections
VIC-2E/M	Use to connect to PBX or key system trunk lines
VIC-2FXO-EU	Use to connect to PBX or key system and to provide off-premise connections in Europe
VIC-2FXO-M1	Use to connect to PBX or key system and to provide off-premise connections in the U.S., Canada and other countries. Includes support for battery polarity reversal detection and Caller ID (requires Cisco IOS Plus 12.1.2T and later and supports Caller ID using Cisco IOS Plus 12.1.3T or later).
VIC-2FXO-M2	Use to connect to PBX or key system and to provide off-premise connections in Europe. Includes support for battery polarity reversal detection and Caller ID (requires Cisco IOS Plus 12.1.2T or later for battery reversal and supports Caller ID using Cisco IOS Plus 12.1.3T or later)
VIC-2FXO-M3	Use to connect to PBX or key system and to provide off-premise connections in Australia
VIC-2BRI-S/T-TE	Use to connect to PBX or key system and to provide off-premise connections (ISDN voice BRI)
VIC-2BRI-NT/TE	Use to connect as network side to PBX or key system and to provide off-premise connections (ISDN voice BRI)
VIC-2DID	Use to provide off–premise direct-inward-dial connection to CO. Serves only incoming calls from the PSTN. Supports caller ID.
VIC-2CAMA	Use to connect to CAMA trunk to provide E-911 service (North America only)

Feature	Benefit
Voice/Fax over IP	Voice and fax traffic are transport independent, because IP traffic at Layer 3 can travel over any Layer 1 or Layer 2 media, including ISDN, leased lines, serial connections, Frame Relay, Ethernet, Token Ring, and Asynchronous Transfer Mode (ATM).
Voice/Fax over Frame Relay	Applications requiring voice and fax traffic to be routed directly over Frame Relay networks will take advantage of FRF.11 and FRF.12 VoFR and fragmentation standards. This solution also uses features found only in Cisco IOS software for maintaining voice quality. VoIP can also be transported over FR.
Voice over ATM	Transport voice directly over ATM networks using AAL2 or AAL 5 encapsulation. Leverages existing ATM networks as a direct transport method for voice. VoATM requires ATM interfaces such as T1/E1 ATM, IMA, DS3/E3 or OC-3, or DSL WICs. VoIP can also be transported over ATM.



Feature	Benefit	
Connection Trunk	Creates a permanent tie-line replacement structure (digital-to-digital, digital-to-analog, or analog-to-analog capabilities).	
LVBO (Local Voice Busy-Out)	Automatically busy out any desired voice trunk line to a PBX or PSTN when a direct WAN or LAN connection to the router is down. Also, busy out a far end trunk connection when configured for Connection Trunk.	
Caller ID Support	Per-port configurable caller ID to phones connected to analog FXS voice ports using per call un-blocking if desired. Also provide caller ID over analog FXO and DID voice interfaces. Interoperates with analog phones, PSTNs, PBXs, H.323 terminals (i.e. Microsoft Netmeeting), Cisco Call Manager and IP phones.	
Call Admission Control using RTR	Uses Response Time Reporter (RTR) to determine latency, delay and jitter and provide real-time ICPIF calculations before establishing a call across an IP infrastructure. RTR packets emulate voice packets receiving the same priority as voice throughout the entire network. A superior method to data and ping packets for determining congestion levels.	
Voice and Fax over Same Port	Ports can be used for both voice and fax trafficno dedicated ports are required.	
Works with Existing Phones, Faxes, PBXs, and Key Systems	No user retraining is required.	
H.323 v3/v4 Compatibility	The Cisco voice/fax modules are interoperable with numerous emerging voice and videoconferencing applications, such as Microsoft NetMeeting, Intel Internet Phone, LAN-based IP telephony equipment, and Cisco Call Manager.	
High-Performance DSP Architecture	The Cisco voice/fax modules offer extremely low latency, which is essential for high-quality voice and fax traffic; the DSP architecture also enables all critical functions to be handled in software, which allows for simple code updates, scalability, and new features.	
ITU Standards G.729, G.729a/b, G.711, G.723.1, G.726 and G.728	These are standards-based compression technologies allowing transmission of voice across IP, Frame Relay and ATM. G.711 is standard 64 kbps PCM modulation using either u-law or A-law.	
Silence Suppression/ Voice Activity Detection (VAD)	Bandwidth is used only when someone is speaking. During silent periods of a phone call, bandwidth is available for data traffic.	
Comfort Noise Generation	To better simulate phone calls over voice networks, this feature reassures the phone user that the connection is being maintained, even when no voice packets are being transmitted.	
Dial Plan Mapping	Automatic mapping of dialed phone numbers to IP addresses simplifies configuration and management.	
Dual Tone Multifrequency (DTMF) Tone Processing	This feature enables access to voice-mail and Interactive Voice Response (IVR) systems.	
Fax and Modem Passthrough	Allows fax and modem traffic to pass through a voice port.	



Feature	Benefit
Fax Relay	Provides a more robust protocol for fax transmission over packet networks. Also supports the T.37 and T.38 fax protocols.
Country-Specific Signaling	This feature transparently delivers customary phone signals to users, facilitating acceptance of new technology.
Autocalling/PLAR	With this feature, a destination phone can be configured to automatically ring when the handset is lifted (also known as Private Line Automatic Ring-down—PLAR).
Hunt Groups	Calls can be forwarded automatically to the first available line.
Battery Polarity Reversal Detection and Initiation	Detection of disconnect supervision and far-end answer supervision via battery polarity reversal provides a robust method of providing supervisory disconnect especially for loop start signaling on FXS and FXO interfaces (12.1(2)T and later Cisco IOS Plus images support battery polarity reversal on the VIC-2FXS, VIC-2FXO-M1 and VIC-2FXO-M2 VICs).
Supervisory Disconnect	Signalling protocols such as loop-start do not provide means for quickly detecting when the call initiation is terminated prior to call connection. Supervisory disconnect quickly makes this determination and frees valuable resources for other calls.
ISDN BRI Network Side and Phantom Power	Cisco IOS software releases 12.1.5T provide the ability to connect PBX configured as user side directly to the router. Phantom power is also provided to accommodate equipment that requires it.
CAMA trunk connection	Cisco IOS software release 12.2(11)T provides the ability to connect to analog CAMA trunk which allows E-911 services.

## Software and Memory Requirements

	Cisco IOS Software	Cisco IOS Software Version		
Product	Cisco 2600	Cisco 3600	Cisco 2691/2600XM/3700	
NM-1V	11.3(4)T or later 12.0(1)T or later	11.3(1)T or later 12.0(1)T or later	12.2.(8)T or later	
NM-2V	11.3(4)T or later 12.0(1)T or later	11.3(1)T or later 12.0(1)T or later	12.2.(8)T or later	
VIC-2FXS	11.3(4)T or later 12.0(1)T or later	11.3(1)T or later 12.0(1)T or later	12.2.(8)T or later	
VIC-2FXO	11.3(4)T or later 12.0(1)T or later	11.3(1)T or later 12.0(1)T or later	12.2.(8)T or later	
VIC-2E/M <sup>1</sup>	11.3(4)T or later 12.0(1)T or later	11.3(1)T or later 12.0(1)T or later	12.2.(8)T or later	
VIC-2FXO-EU	11.3(6)T or later 12.0(2)T or later	11.3(6)T or later 12.0(2)T or later	12.2.(8)T or later	
VIC-2FXO-M1	12.1(2)T or later	12.1(2)T or later	12.2.(8)T or later	



	Cisco IOS Software V	Cisco IOS Software Version	
Product	Cisco 2600	Cisco 3600	Cisco 2691/2600XM/3700
VIC-2FXO-M2	12.1(2)T or later	12.1(2)T or later	12.2.(8)T or later
VIC-2FXO-M3	11.3(6)T or later 12.0(2)T or later	11.3(6)T or later 12.0(2)T or later	12.2.(8)T or later
VIC-2BRI-S/T-TE	12.0(3)T or later	12.0(3)T or later 3660 requires 12.1.2T	12.2.(8)T or later
VIC-2BRI-NT/TE	12.1.(3)XI or later 12.1.(5)T or later	12.1.(3)XI or later 12.1.(5)T or later	12.2.(8)T or later
VIC-2DID	12.1(5)XM1 or later 12.2(2)T or later	12.1(5)XM1 or later 12.2(2)T or later	12.2.(8)T or later
VIC-2CAMA	12.2.(11)T or later	12.2.(11)T or later	12.2.(11)T or later

<sup>1.</sup> The VIC-2E/M requires Cisco IOS Plus version 11.3(6)T for on-premise connections in Australia.

Please refer to the Cisco  ${\sf IOS}^{\circledR}$  release note for determining the minimum flash and DRAM memory requirements.

## Specifications

NM-1V	One voice/fax interface card slot network module
Cisco IOS Requirement	11.3(1)T or later for Cisco 3600
	11.3(4)T or later for Cisco 2600
	12.2(8)T or later for Cisco 2691, 2600XM, and 3700
Cisco Part Number	800-02489-01
FCC Specifications	FCC Class B device
Spare	NM-1V=
Mean Time between Failures (MTBF)	946,423 hours
Requires One VIC	VIC-2FXS 800-02493-01
	VIC-2FXO 800-02495-01
	VIC-2E/M 800-02497-01
	VIC-2FXO-EU 800-03639-01
	VIC-2FXO-M1 800-05298-01
	VIC-2FXO-M2 800-05920-01
	VIC-2FXO-M3 800-04581-01
	VIC-2BRI-S/T-TE 800-03803-1
	VIC-2BRI-NT/TE 800-07272-01
	VIC-2DID 800-06487-01
	VIC-2CAMA 800-18443-01



NM-2V	Two voice/fax interface card slot network module
Cisco IOS Requirement	11.3(1)T or later for Cisco 3600
	11.3(4)T or later for Cisco 2600
	12.2(8)T or later for Cisco 2691, 2600XM, and 3700
Cisco Part Number	800-02491-01
FCC Specifications	FCC Class B device
Spare	NM-2V=
MTBF	755,717 hours
Requires at Least One VIC (maximum	VIC-2FXS 800-02493-01
of two)	VIC-2FXO 800-02495-01
	VIC-2E/M 800-02497-01
	VIC-2FXO-EU 800-03639-01
	VIC-2FXO-M1 800-05298-01
	VIC-2FXO-M2 800-05920-01
	VIC-2FXO-M3 800-04581-01
	VIC-2BRI-S/T-TE 800-03803-1
	VIC-2BRI-NT/TE 800-07272-01
	VIC-2DID 800-06487-01
	VIC-2CAMA 800-18443-01

VIC-2FXS	Two-port FXS voice/fax interface card
Interface Type	Foreign exchange station
Cisco IOS Requirement	11.3(1)T or later for Cisco 3600
	11.3(4)T or later for Cisco 2600
	12.2(8)T or later for Cisco 2691, 2600XM,and 3700
Cisco Part Number	800-02493-01
Compliance	FCC Class B device, CE
Safety Conformance	UL1950
Spare	VIC-2FXS=
Address Signaling Formats	In-band DTMF
	Out-of-band pulse (10/20 pps)
Signaling Formats	Loop start, ground start
Ringing Tone	Configurable for different country requirements
Ringing Voltage	<45 Vrms at 5 REN at 25 Hz (configurable frequency)
Ringing Frequencies	20 Hz, 50 Hz
Physical Connector	RJ-11
Number of Connectors/Ports	Two
MTBF	2,248,909 hours



VIC-2FXO	Two-port FXO voice/fax interface card
Interface Type	Foreign exchange office
Cisco IOS Requirement	11.3(1)T or later for Cisco 3600
	11.3(4)T or later for Cisco 2600
	12.2(8)T or later for Cisco 2691, 2600XM, and 3700
Cisco Part Number	800-02497-01
Compliance	FCC Class B device, CE
Safety Conformance	UL1950
Spare	VIC-2FXO=
Signaling Formats	Loop start, ground start
Address Signaling Formats	In-band DTMF
	Out-of-band pulse (10/20 pps)
Tone Disconnect Supervision	Call disconnect on progress tone of less than 600 Hz
Power Interrupt Disconnect	Call disconnect on power interrupt of > 600 msec
Physical Connector	RJ-11
Number of Connectors/Ports	Two
MTBF	2,302,609 hours

VIC-2E/M	Two-port E&M voice/fax interface card
Interface Type	For PBX trunking
Cisco IOS Requirement	11.3(1)T or later for Cisco 3600
	11.3(4)T or later for Cisco 2600
	12.2(8)T or later for Cisco 2691, 2600XM, and 3700
Cisco Part Number	800-02497-01
Compliance	FCC Class B device, CE
Safety Conformance	UL 1950
Spare	VIC-2E/M=
Address Signaling Formats	In-band DTMF
	Out-of-band pulse (10/20 pps)
Signaling Formats	Immediate, delay dial, wink start
Signaling Types	I, II, III, and V
E-Lead Current Limit	100 mA
M-Lead Sensitivity	> 3 mA
Pulse Distortion	< 2%
Physical Connector	4 wire/2 wire
Number of Connectors/Ports	Two
MTBF	1,943,521 hours



VIC-2FXO-EU	Two-port FXO voice/fax interface card (for Europe)				
Interface Type	Foreign exchange office				
Cisco IOS Requirement	11.3(6)T or later for Cisco 3600 or 12.0(2)T or later for Cisco 3600				
	11.3(6)T or later for Cisco 2600 or 12.0(2)T or later for Cisco 2600				
	12.2(8)T or later for Cisco 2691, 2600XM, and 3700				
Cisco Part Number	800-03639-01				
Compliance	CE, CTR-21				
Safety Conformance	UL1950				
Spare	VIC-2FXO-EU=				
Signaling Formats	Loop start				
Address Signaling Formats	In-band DTMF				
	Out-of-band pulse (10/20 pps)				
Tone Disconnect Supervision	Call disconnect on progress tone of less than 600 Hz				
Power Interrupt Disconnect	Call disconnect on power interrupt of > 600 msec				
Physical Connector	RJ-11				
Number of Connectors/Ports	Two				
MTBF	1,010,264 hours				

VIC-2FXO-M1	Two-port FXO voice/fax interface card with battery reversal detection and caller ID (for US, Canada, Japan and other countries)					
Interface Type	Foreign exchange office					
Cisco IOS Requirement	12.1.2T or later for Cisco 3600 and 2600					
	12.2(8)T or later for Cisco 2691, 2600XM,and 3700					
Cisco Part Number	800-05298-01					
Compliance	FCC Class B device, CE					
Safety Conformance	UL1950					
Spare	VIC-2FXO-M1=					
Signaling Formats	Loop start, ground start					
Address Signaling Formats	In-band DTMF					
	Out-of-band pulse (10/20 pps)					
Tone Disconnect Supervision	Call disconnect on progress tone of less than 600 Hz					
Battery Polarity Reversal Detection	Detection of disconnect supervision and far-end answer supervision via battery polarity reversal					
Power Interrupt Disconnect	Call disconnect on power interrupt of > 600 msec					
Physical Connector	RJ-11					
Number of Connectors/Ports	Two					
MTBF	546,560 hours (using Bellcore model)					



VIC-2FXO-M2	Two-port FXO voice/fax interface card with battery reversal detection and caller ID					
	support (for Europe)					
Interface Type	Foreign exchange office					
Cisco IOS Requirement	12.1.2T or later for Cisco 3600 and 2600					
	12.2(8)T or later for Cisco 2691, 2600XM, and 3700					
Cisco Part Number	800-05920-01					
Compliance	CE, CTR-21					
Safety Conformance	UL1950					
Spare	VIC-2FXO-M2=					
Signaling Formats	Loop start					
Address Signaling Formats	In-band DTMF					
	Out-of-band pulse (10/20 pps)					
Tone Disconnect Supervision	Call disconnect on progress tone of less than 600 Hz					
Battery Polarity Reversal Detection	Detection of disconnect supervision and far-end answer supervision via battery polarity reversal					
Power Interrupt Disconnect	Call disconnect on power interrupt of > 600 msec					
Physical Connector	RJ-11					
Number of Connectors/Ports	Two					
MTBF	656, 116 hours (using Bellcore model)					

VIC-2FXO-M3	Two-port FXO voice/fax interface card (for Australia)				
Interface Type	Foreign exchange office				
Cisco IOS Requirement	11.3(6)T or later for Cisco 3600 or 12.0(2)T or later for Cisco 3600				
	11.3(6)T or later for Cisco 2600 or 12.0(2)T or later for Cisco 2600				
	12.2(8)T or later for Cisco 2691, 2600XM,and 3700				
Cisco Part Number	800-04581-01				
Compliance	AUA TS.002, AUA TS.003				
Safety Conformance	UL1950				
Spare	VIC-2FXO-M3=				
Signaling Formats	Loop start, ground start				
Address Signaling Formats	In-band DTMF				
	Out-of-band pulse (10/20 pps)				
Tone Disconnect Supervision	Call disconnect on progress tone of less than 600 Hz				
Power Interrupt Disconnect	Call disconnect on power interrupt of > 600 msec				
Physical Connector	RJ-11				
Number of Connectors/Ports	Two				
MTBF	1,010,264 hours				



VIC-2BRI-ST-TE	Two-port BRI voice/fax interface card (terminal side)				
Interface Type	ISDN Basic Rate Interface				
Cisco IOS Requirement	12.0(3)T or later for Cisco 3600 and 2600				
	12.2(8)T or later for Cisco 2691, 2600XM, and 3700				
Cisco Part Number	800-03803-01				
Compliance	FCC Part 68				
	CS03				
	CTR3				
	TS-031				
	JATE Green Book				
Safety Conformance	UL1950, CAN/CSA-C22.2, IEC 950, EN60950				
Spare	VIC-2BRI-ST-TE=				
ITU Compliance	ITU-T Q.920, Q.921, Q.930, Q.931				
Interface	Four wire user side S/T				
ISDN Digital Access	Basic Rate Interface (BRI) 4B+2D				
Physical Connector	RJ-45				
Number of Connectors/Ports	Two				
MTBF	2,951,544 hours				

VIC-2BRI-NT/TE	Two-port BRI voice/fax interface card (network side)				
Interface Type	ISDN Basic Rate Interface				
Cisco IOS Requirement	12.1(3)XI or 12.1(5)T later for Cisco 3600 and 2600				
oloco iloc iloquii oliiloiii	12.2(8)T or later for Cisco 2691, 2600XM, and 3700				
Cisco Part Number	800-07272-01				
Compliance	FCC Part 68				
	CS03				
	CTR3				
	TS-031				
	JATE Green Book				
Safety Conformance	UL1950, CAN/CSA-C22.2, IEC 950, EN60950				
Spare	VIC-2BRI-NT/TE=				
ITU Compliance	ITU-T Q.920, Q.921, Q.930, Q.931				
Interface	Four wire user side S/T or network side NT				
ISDN Digital Access	Basic Rate Interface (BRI) 4B+2D				
Physical Connector	RJ-45				
Number of Connectors/Ports	Two				
MTBF	1,991,520 hours				



VIC-2DID	Two-port DID voice/fax interface card				
Interface Type	Direct inward dial trunk				
Cisco IOS Requirement	12.1(5)XM1 or 12.2(2)T later for Cisco 2600/3600				
	12.2(8)T or later for Cisco 2691, 2600XM, and 3700				
Cisco Part Number	800-06487-01				
Compliance	FCC Class B device, CE				
Safety Conformance	UL1950				
Spare	VIC-2DID=				
Address Signaling Formats	In-band DTMF				
	Out-of-band pulse (10/20 pps)				
Signaling Formats	Immediate, delay dial, wink start				
Disconnect Supervision	Power denial (Calling Party Control, far-end disconnect)				
Caller ID	On-hook transmission of FSK data				
Physical Connector	RJ-11				
Number of Connectors/Ports	Two				
MTBF	3,270,000 hours				

VIC-2CAMA	Two-port CAMA trunk interface card (user side)					
Interface Type	CAMA trunk					
Cisco IOS Requirement	12.2(11)T or later for Cisco 2600, 3600, and 3700					
Cisco Part Number	800-18443-1					
Compliance	FCC Part 68					
Safety Conformance	UL1950, CAN/CSA-C22.2					
Spare	VIC-2CAMA=					
Signaling Format	wink					
Battery Polarity Reversal Detection	Detection of disconnect supervision via battery polarity reversal					
Physical Connector	RJ-11					
Number of Connectors/Ports	Two					
MTBF	613,250 hours					

The following VICs are approved for the countries listed below for off-premise and on-premise connections.

VIC-2FXO	VIC-2FXO-E	VIC-2FXO-M	VIC-2FXO-M	VIC-2FXO-M	VIC-2BRI	VIC-2BRI	VIC-
	U	1	2	3	-S/T-TE	-NT/TE	2DID
USA Canada Hong Kong New Zealand Japan Malaysia Taiwan Bulgaria Hungary Russia India Mexico	CE countries* Saudi Arabia Belarus	USA Canada Singapore Poland Hong Kong New Zealand Japan Malaysia China India	CE countries* UAE Bulgaria Israel	Australia	USA Canada Australia Singapore Poland CE countries* Hong Kong New Zealand Japan Malaysia Romania Saudi Arabia Taiwan UAE Belarus Bulgaria Hungary Israel China Czech Republic Russia	USA Canada Australia Singapore Poland CE countries* Hong Kong New Zealand Japan	USA Canada Australia CE countries* Hong Kong VIC- 2CAMA USA Canada

<sup>\*</sup>European Community countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxemborg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom.



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